

Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application.

Listing of Claims:

Claim 1 (currently amended) A water/air contact medium for use in an evaporative cooler, comprising

a corrugated fibrous sheet material comprising at least a top layer and a bottom layer in contact at one or more regions to form at least two channels between the top layer and the bottom layer for air and fluid flow; and

a water insoluble thermoplastic compound that impregnates the corrugated fibrous sheet material, wherein the water insoluble thermoplastic compound consisting essentially of one or more water insoluble ~~amorphous~~ cationic polymers and one or more cationic groups pendent to the one or more water insoluble amorphous cationic polymers to give an overall positive charge to inhibit deposition of one or more dissolved or particulate contaminants ~~wherein the water insoluble thermoplastic compound has a nonpolar solubility parameter δ_n within the range of about 6.5 to about 8.5 g-cal/mole, a polar solubility parameter δ_p within the range of zero to about 8.5 g-cal/mole, and a hydrogen bond solubility parameter δ_h within the range of zero to about 7.0 g-cal/mole.~~

Claim 2 (previously presented) The contact medium as recited in claim 1, wherein the water insoluble thermoplastic compound also has a surface tension between about 20 and 70 dynes/cm and an interfacial tension with in-service water between zero and about 30 dynes/cm.

Claim 3 (cancelled)

Claim 4 (previously presented) The contact medium as recited in claim 1, wherein the water insoluble thermoplastic compound has

a nonpolar solubility parameter δ_n within the range of about 6.5 to about 8.5 g-cal/mole, a polar solubility parameter δ_p within the range of about 2.5 to about 7.5 g-cal/mole, and a hydrogen bond solubility parameter δ_h , within the range of about 0.7 to about 5.0 g cal/mole.

Claim 5 (previously presented) The contact medium as recited in claim 1, wherein the water insoluble thermoplastic compound has
a nonpolar solubility parameter δ_n within the range of about 6.5 to about 8.5 g-cal/mole,
a polar solubility parameter δ_p within the range of about 3.0 to about 5.5 g-cal/mole, and
a hydrogen bond solubility parameter δ_h , within the range of about 1.0 to about 4.0 g
cal/mole.

Claim 6 (previously presented) The contact medium as recited in claim 1, wherein the water insoluble thermoplastic compound has a surface tension between about 30 and about 68 dynes/cm, and an interfacial tension with in-service water between zero and about 23 dynes/cm.

Claim 7 (previously presented) The contact medium as recited in claim 4, wherein the water insoluble thermoplastic compound has a surface tension between about 30 and about 68 dynes/cm, and an interfacial tension with in-service water between zero and about 23 dynes/cm.

Claim 8 (previously presented) The contact medium as recited in claim 5, wherein the water insoluble thermoplastic compound has a surface tension between about 30 and about 68 dynes/cm, and an interfacial tension with in-service water between zero and about 23 dynes/cm.

Claim 9 (previously presented) The contact medium as recited in claim 1, wherein the water insoluble thermoplastic compound has a surface tension between about 40 and about 68 dynes/cm, and an interfacial tension with in-service water between zero and about 15 dynes/cm.

Claim 10 (previously presented) The contact medium as recited in claim 4, wherein the water insoluble thermoplastic compound has a surface tension between about 40 and about 68 dynes/cm, and an interfacial tension with in-service water between zero and about 15 dynes/cm.

Claim 11 (previously presented) The contact medium as recited in claim 5, wherein the water insoluble thermoplastic compound has a surface tension between about 40 and about 68 dynes/cm, and an interfacial tension with in-service water between zero and about 15 dynes/cm.

Claim 12 (previously presented) The contact medium as recited in claim 1, further comprising a discontinuous phase dispersed in the continuous phase.

Claim 13 (previously presented) The contact medium as recited in claim 12, wherein the discontinuous phase further comprises fillers, pigments or extenders or combinations thereof.

Claim 14 (previously presented) The contact medium as recited in claim 13, wherein the water insoluble thermoplastic compound and the discontinuous phase together make up between three and about sixty percent of the total weight of the contact media when dry.

Claim 15 (previously presented) The contact medium as recited in claim 13, wherein the water insoluble thermoplastic compound and the discontinuous phase together make up between five and about twenty-five percent of the total weight of the contact media when dry.

Claim 16 (previously presented) The contact medium as recited in claim 13, wherein the water insoluble thermoplastic compound and the discontinuous phase together make up between about ten and about fifteen percent of the total weight of the contact media when dry.

Claims 17-24 (cancelled)

Claim 25 (currently amended) A water/air contact medium for use in an evaporative cooler, comprising:

a) a corrugated fibrous sheet material comprising at least a top layer and a bottom layer in contact at one or more regions to form at least two channels between the top layer and the bottom layer for air and fluid flow;

b) an cationic impregnation water insoluble layer comprising a cationic continuous phase deposited on the corrugated fibrous sheet material to form a cationic impregnated continuous phase medium; and

c) one or more cationic thermoplastic polymers dispersed in the cationic continuous phase for inhibiting deposition of one or more dissolved or particulate contaminants onto the

ionic impregnated continuous phase medium, wherein the one or more cationic thermoplastic polymers is selected from the group consisting of polyacetals, polyacrylates, polyacrylics, polyacrylamides, polyalkylamides, polyamides, polyamideimides, polycarbonates, polycarboxylicdihydric esters, polyimides, polyesters, polycellulose acetate butyrates, polydiglycidyletheralkyl/aryldiols, polysilicones, polysiloxanes, polysiloxides, polystyrenes, polysucrose acetate butyrates, polysulfonamides, polysulfones, polyurethanes, polyvinylacetals, and polyvinylhalogens.

Claim 26 (previously presented) The contact medium as recited in claim 1, wherein the one or more amorphous cationic polymers of the cationic continuous phase is selected from the group consisting of polyacetals, polyacrylates, polyacrylics, polyacrylamides, polyalkylamides, polyamides, polyamideimides, polycarbonates, polycarboxylicdihydric esters, polyimides, polyesters, polycellulose acetate butyrates, polydiglycidyletheralkyl/aryldiols, polysilicones, polysiloxanes, polysiloxides, polystyrenes, polysucrose acetate butyrates, polysulfonamides, polysulfones, polyurethanes, and polyvinylacetals.

Claim 27 (cancelled)

Claim 28 (previously presented) The contact medium as recited in claim 25, wherein the one or more thermoplastic cationic polymers of the non-chlorinated continuous phase is selected from the group consisting of polyacetals, polyacrylates, polyacrylics, polyacrylamides, polyalkylamides, polyamides, polyamideimides, polycarbonates, polycarboxylicdihydric esters, polyimides, polyesters, polycellulose acetate butyrates, polydiglycidyletheralkyl/aryldiols, polysilicones, polysiloxanes, polysiloxides, polystyrenes, polysucrose acetate butyrates, polysulfonamides, polysulfones, polyurethanes, and polyvinylacetals.

Claims 29-32 cancelled

Claim 33 (currently amended) A water/air contact medium for use in an evaporative cooler, comprising

a corrugated fibrous sheet material comprising at least a top layer and a bottom layer in

contact at one or more regions to form at least two channels between the top layer and the bottom layer for air and fluid flow; and

a water insoluble thermoplastic compound with a molecular weight of at least 2500 g/mole that impregnates the corrugated fibrous sheet material, wherein the water insoluble thermoplastic compound consisting essentially of

40 weight percent polyvinyl chloride and

60 weight percent polymethacrylate to inhibit deposition of one or more dissolved or particulate contaminants ~~wherein the water insoluble thermoplastic compound has a nonpolar solubility parameter δ_n of about 7.47 g-cal/mole, a polar solubility parameter δ_p of about 5.21 g-cal/mole, and a hydrogen bond solubility parameter δ_{Hb} of about 3.11 g-cal/mole.~~

Claim 34 (currently amended) A water/air contact medium for use in an evaporative cooler, comprising

a corrugated fibrous sheet material comprising at least a top layer and a bottom layer in contact at one or more regions to form at least two channels between the top layer and the bottom layer for air and fluid flow; and

a water insoluble thermoplastic compound that impregnates the fibrous material, wherein the water insoluble thermoplastic compound with a molecular weight of at least 2500 g/mole consisting essentially of

70 weight percent Polyamideimide and

30 weight percent Polystyrene to inhibit deposition of one or more dissolved or particulate contaminants ~~wherein the water insoluble thermoplastic compound has a nonpolar solubility parameter δ_n of about 7.94 g-cal/mole, a polar solubility parameter δ_p of about 6.19 g-cal/mole, and a hydrogen bond solubility parameter δ_{Hb} of about 5.22 g-cal/mole.~~

Claim 35 (withdrawn) A water/air contact medium for use in an evaporative cooler, comprising a fibrous material; and

a water insoluble thermoplastic compound that impregnates the fibrous material, wherein the water insoluble thermoplastic compound has a molecular weight of at least 2500 g/mole consisting essentially of 40 weight percent Polystyrene, 40 weight percent Polybutadiene and 20 weight percent Polyacrylonitrile to inhibit deposition of one or more dissolved or particulate

contaminants wherein the water insoluble thermoplastic compound has a nonpolar solubility parameter δ_n of about 7.16 g-cal/mole, a polar solubility parameter δ_p of about 4.37 g-cal/mole, and a hydrogen bond solubility parameter δ_h , of about 3.60 g-cal/mole.

Claim 36 (withdrawn) A water/air contact medium for use in an evaporative cooler, comprising
a fibrous material; and
a water insoluble thermoplastic compound that impregnates the fibrous material, wherein the water insoluble thermoplastic compound has a molecular weight of at least 2500 g/mole consisting essentially of

Polyamideimide to inhibit deposition of one or more dissolved or particulate contaminants wherein the water insoluble thermoplastic compound has a nonpolar solubility parameter δ_n of about 7.84 g-cal/mole, a polar solubility parameter δ_p of about 7.11 g-cal/mole, and a hydrogen bond solubility parameter δ_h , of about 6.43 g-cal/mole.

Claim 37 (withdrawn) A water/air contact medium for use in an evaporative cooler, comprising
a fibrous material; and
a water insoluble thermoplastic compound that impregnates the fibrous material, wherein the water insoluble thermoplastic compound has a molecular weight of at least 2500 g/mole consisting essentially of

Polybutylacrylate to inhibit deposition of one or more dissolved or particulate contaminants wherein the water insoluble thermoplastic compound has a nonpolar solubility parameter δ_n of about 7.90 g-cal/mole, a polar solubility parameter δ_p of about 4.28 g-cal/mole, and a hydrogen bond solubility parameter δ_h , of about 3.54 g-cal/mole.

Claim 38 (currently amended) A water/air contact medium for use in an evaporative cooler, comprising
a corrugated fibrous sheet material comprising at least a top layer and a bottom layer in contact at one or more regions to form at least two channels between the top layer and the bottom layer for air and fluid flow; and
a water insoluble thermoplastic compound has a molecular weight of at least 2500 g/mole that impregnates the corrugated fibrous sheet material, wherein the water insoluble thermoplastic

compound comprise

about 5-15 weight percent Polyvinyl chloride,
about 2-8 weight percent Polyacrylonitrile,
about 5-15 weight percent Polymethacrylate,
about 5-15 weight percent Polyamideimide,
about 5-15 weight percent Polybutylacrylate,
about 20-30 weight percent Polystyrene, and
about 25-35 weight percent Polybutadiene,
to inhibit deposition of one or more dissolved or particulate contaminants wherein the

water insoluble thermoplastic compound has a

nonpolar solubility parameter δ_n of between 6.75-8 g-cal/mole,
a polar solubility parameter δ_p of between 4-5 g-cal/mole, and
a hydrogen bond solubility parameter δ_h of between 3-4 g-cal/mole.

Claim 39 (withdrawn) A water/air contact medium for use in an evaporative cooler, comprising
a fibrous material; and

a water insoluble thermoplastic compound that impregnates the fibrous material, wherein
the water insoluble thermoplastic compound comprise

10 weight percent Polyvinyl chloride,
5 weight percent Polyacrylonitrile,
10 weight percent Polymethacrylate,
10 weight percent Polyamideimide,
10 weight percent Polybutylacrylate,
25 weight percent Polystyrene, and
30 weight percent Polybutadiene,
to inhibit deposition of one or more dissolved or particulate contaminants wherein the

water insoluble thermoplastic compound has a

nonpolar solubility parameter δ_n of about 7.36 g-cal/mole,
a polar solubility parameter δ_p of about 4.47 g-cal/mole, and
a hydrogen bond solubility parameter δ_h of about 3.55 g-cal/mole.

Claim 40 (withdrawn) A water/air contact medium for use in an evaporative cooler, comprising
a fibrous material; and

a water insoluble thermoplastic compound that impregnates the fibrous material, wherein
the water insoluble thermoplastic compound comprise

- 7 weight percent Polyacrylonitrile,
- 13 weight percent Polymethacrylate,
- 8 weight percent Polyamideimide,
- 18 weight percent Polybutylacrylate,
- 32 weight percent Polystyrene, and
- 22 weight percent Polybutadiene,

to inhibit deposition of one or more dissolved or particulate contaminants wherein the
water insoluble thermoplastic compound has a

- nonpolar solubility parameter δ_n of about 7.50 g-cal/mole,
- a polar solubility parameter δ_p of about 4.48 g-cal/mole, and
- a hydrogen bond solubility parameter δ_h , of about 3.49 g-cal/mole.

Claim 41 (withdrawn) A water/air contact medium for use in an evaporative cooler, comprising
a fibrous material; and

a water insoluble thermoplastic compound that impregnates the fibrous material, wherein
the water insoluble thermoplastic compound comprise

- 3 weight percent Polyacrylonitrile,
- 4 weight percent Polymethacrylate,
- 3 weight percent Polyamideimide,
- 8 weight percent Polybutylacrylate,
- 55 weight percent Polystyrene, and
- 27 weight percent Polybutadiene,

to inhibit deposition of one or more dissolved or particulate contaminants wherein the
water insoluble thermoplastic compound has a

- nonpolar solubility parameter δ_n of about 7.58 g-cal/mole,
- a polar solubility parameter δ_p of about 4.00 g-cal/mole, and
- a hydrogen bond solubility parameter δ_h , of about 3.00 g-cal/mole.

Claim 42 (withdrawn) A water/air contact medium for use in an evaporative cooler, comprising
a fibrous material; and
a water insoluble thermoplastic compound that impregnates the fibrous material, wherein
the water insoluble thermoplastic compound comprise
80 weight percent Copolybutylacrylate-amideimide,
20 weight percent Copolystyrene-butadiene,
to inhibit deposition of one or more dissolved or particulate contaminants wherein the
water insoluble thermoplastic compound has a
nonpolar solubility parameter δ_n of about 7.58 g-cal/mole,
a polar solubility parameter δ_p of about 5.48 g-cal/mole, and
a hydrogen bond solubility parameter δ_h , of about 3.91 g-cal/mole.

Claim 43 (withdrawn) A water/air contact medium for use in an evaporative cooler, comprising
a fibrous material; and
a water insoluble thermoplastic compound that impregnates the fibrous material, wherein
the water insoluble thermoplastic compound comprise
2 weight percent Copolymethacrylate-acrylonitrile,
81 weight percent Copolybutylacrylate-amideimide,
17 weight percent Copolystyrene-butadiene,
to inhibit deposition of one or more dissolved or particulate contaminants wherein the
water insoluble thermoplastic compound has a
nonpolar solubility parameter δ_n of about 7.55 g-cal/mole,
a polar solubility parameter δ_p of about 5.50 g-cal/mole, and
a hydrogen bond solubility parameter δ_h , of about 3.89 g-cal/mole.